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November 17, 2005

The purpose of these replacement pages is to revise information contained in the FY2003 HRR in response to regulatory agency comments.

The following Pages and Figures are enclosed:

- Page 7,
- Figures 2.2, 2.3, and 2.4,
- Page 62,
- Page 77,
- Page 143,
- Pages 177 and 178,
- Page 182,
- Page 193,
- Pages 212 and 213

Please use the enclosed pages to update your copy of this document. If you have any questions, please contact Susan Serreze at 303-966-2677 or Karen Griggs at 303-966-4743.

Thank you.



ADMIN RECORD

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451

Section 1.0 is a historical summary of the HRR process and identifies the contents of this document. Section 1.0 includes three tables, as follows:

Table 1.1, located in the introductory background section, provides an overview of the OUs that resulted from regulatory agreements (that is, the IAG and RFCA).

Table 1.2 is provided as a summary of the IHSS, PAC and UBC Site status contained within this Annual Update to the HRR.

Table 1.2
HRR PAC UBC Narrative Updates Contained in This Annual Report

IHSS	IHSS Group	OU	PAC	Site Description	Updated	NFAA Status
111.1	NA	BZ	NE-111.1	Trench T-4	1996 Annual Update 1997 Annual Update	Approved 6-12-03
111.4	NE-1	BZ	NE-111.4	Trench T-7	NA	Approved 6-12-03
216.2	NE/NW	BZ	NE-216.2	East Spray Field	1997 Annual Update	Proposed
216.3	NE/NW	BZ	NE-216.3	East Spray Field	1997 Annual Update	Proposed
NA	NE/NW	BZ	NE-1407	OU 2 Treatment Facility	Quarterly 7 and 8	Proposed
NA	NE/NW	BZ	NE-1412	Trench T-12	Quarterly 10	Proposed
NA	NE/NW	BZ	NE-1413	Trench T-13	Quarterly 10	Proposed
174a	NE/NW	BZ, OU 10	NW-174a	PU&D Yard Container Storage Area	1997 Annual Update 1998 Annual Update	Proposed
133.1	SW-1	BZ	SW-133.1	Ash Pit 1	2001 Annual Update	Approved 6-12-03
133.2	SW-1	BZ	SW-133.2	Ash Pit 2	2001 Annual Update 2002 Annual Update	Approved 6-12-03
133.4	SW-1	BZ	SW-133.4	Ash Pit 4	2001 Annual Update 2002 Annual Update	Approved 6-12-03
1702	SW-1	BZ	SW-1702	Recently Identified Ash Pit (also referred to as TDEM-2)	2001 Annual Update	Approved 6-12-03
101	000-1	IA, OU 4	000-101	Solar Evaporation Ponds	1998 Annual Update	Approved 7-29-03
148	100-4	IA, OU 13	100-148	Waste Leaks	2002 Annual Update	Approved 4-22-03
NA	100-5	IA	100-609	Security Incinerator	2002 Annual Update	Approved 4-22-03
NA	100-4	IA	100-611	Building 123 Scrubber Solution Spill	2002 Annual Update	Approved 4-22-03
128	300-1	IA, OU 13	300-128	Oil Burn Pit No. 1	NA	Approved 6-20-03
134N	300-1	IA, OU 13	300-134(N)	Lithium Metal Destruction Site	NA	Approved 6-20-03
171	300-1	IA, OU 13	300-171	Solvent Burning Ground	NA	Approved 6-20-03
NA	300-6	IA	300-702	Pesticide Shed	NA	Approved 7-21-03
NA	600-2	IA	400-802	Storage Shed South of Building 334	NA	Approved 6-19-03
NA	400-10	IA	400-807	Sandblasting Area	NA	Approved 7-15-03
NA	500-6	IA	500-906	Asphalt Surface Near Building 559	2002 Annual Update	Approved 7-16-03
NA	500-7	IA	500-907	Tanker Truck Release of Hazardous Waste from Tank 231B	NA	Approved 6-9-03
120.2	400-10	IA, OU 12	600-120.2	Fiberglassing Area West of Building 664	NA	Approved 7-15-03
161	400-10	IA, OU 14	600-161	Radioactive Site West of Building 664	NA	Approved 7-15-03

IHSS	IHSS Group	OU	PAC	Site Description	Updated	NFAA Status
NA	600-1	IA	600-1001	Temporary Waste Storage Building 663	1997 Annual Update	Approved 6-24-03
NA	600-6	IA	600-1005	Former Pesticide Storage Area	2002 Annual Update	Approved 5-15-03
150.6	700-7	IA, OU 8	700-150.6	Radioactive Site South of Building 779	NA	Proposed
150.8	700-7	IA, OU 8	700-150.8	Radioactive Site Northeast of Building 779	NA	Proposed
NA	700-12	NA	700-1106	Process Waste Spill - Portal 1	2002 Annual Update	Approved 5-15-03
164.2	800-4	IA, OU 14	800-164.2	Radioactive Site 800 Area Site #2, Building 886 Spills	NA	Approved 5-15-03
164.3	800-6	IA, OU 14	800-164.3	Radioactive Site 800 Area Site #2, Building 889 Storage Pad	NA	Approved 3-25-03
NA	800-2	IA	800-1205	Building 881, East Dock	NA	Approved 7-16-03
140	900-11	BZ	900-140	Hazardous Disposal Area, part of IHSS 155	1997 Annual Update 1998 Annual Update 2000 Annual Update	Proposed
153	900-2	BZ	900-153	Oil Burn Pit No. 2	1999 Annual Update	Proposed 8-16-03
154	900-2	BZ	900-154	Pallet Burn Site	1999 Annual Update	Proposed 8-16-03
165	000-1	IA, OU 6	900-165	Triangle Area	NA	Approved 7-29-03
175	900-4&5	IA, OU 10	900-175	S&W Building 980 Contractor Storage Facility	NA	Approved 7-23-03
176	000-1	IA, OU 10	900-176	S&W Contractor Storage Yard	NA	Approved 7-29-03
NA	100-4	IA	UBC 123	Health Physics Laboratory	2002 Annual Update	Approved 4-22-03
NA	300-3	IA	UBC 371	UBC 371 - Plutonium Recovery	NA	Approved 8-21-03
NA	300-4	IA	UBC 374	UBC 374 - Waste Treatment Facility	NA	Approved 8-21-03
NA	700-7	IA	UBC 776	Original Plutonium Foundry	NA	NA
NA	700-7	IA	UBC 777	General Plutonium Research and Development	NA	NA
NA	800-2	IA	UBC 881	UBC 881 - Laboratory and Office	NA	Approved 7-16-03
NA	800-4	IA	UBC 886	UBC 886 - Critical Mass Laboratory	2001 Annual Update	Approved 5-15-03
NA	800-6	IA, OU 14	UBC 889	UBC-889 Decontamination and Waste Reduction		Approved 3-25-03
NA	900-1	NA	UBC 991	UCB 991 Tunnel	NA	Approved 8-21-03

Table 1.3 is an up-to-date account of (1) the number of geographic areas (i.e., IHSSs, PACs, and UBC Sites) proposed and accepted as NFAA, either by written concurrence from the regulatory agencies or through the CAD/ROD process, (2) the number of geographic areas "proposed" for NFAA since the 1992 HRR, for which concurrence has not been received from the regulatory agencies, and (3) the number of total geographic areas warranting further research, investigation, or action.

Figure 2.2
Ash Pit Boundaries



EXPLANATION

- Subsurface Soil
- ▲ Surface Soil
- Sediment
- ▼ Groundwater Well
- Ash Pit
- Ghost Ash Pit

Standard Map Features

- Buildings and other structures
- ▨ Demolished buildings and other structures
- Streams, ditches, or other drainage features
- Topographic Contour (2-Foot)
- Paved roads
- - - Dirt roads

DATA SOURCE BASE FEATURES:

Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EOAS RSI, Las Vegas. Digitized from the orthophotographs. 1/95
Topographic contours were derived from digital elevation model (DEM) data by Morrison Knudsen (MK) using ESRI Arc TIN and LATICE to process the DEM data to create 2-foot contours. The DEM data was captured by the Remote Sensing Lab, Las Vegas, NV, 1994 Aerial Flyover at ~10 meter resolution. DEM post-processing performed by MK, Winter 1997.

NOTES:

All #SS and PAC's Boundaries are Approximate. For more detail, please contact Nick Demos (X4506) for the following document:
Historical Release Report (HRR) September 2001 Annual Update



Scale = 1 : 2480
1 inch represents 205 feet



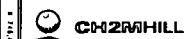
State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

GIS Dept. 303-968-7707

Prepared by:

Prepared for:



November 08, 2005

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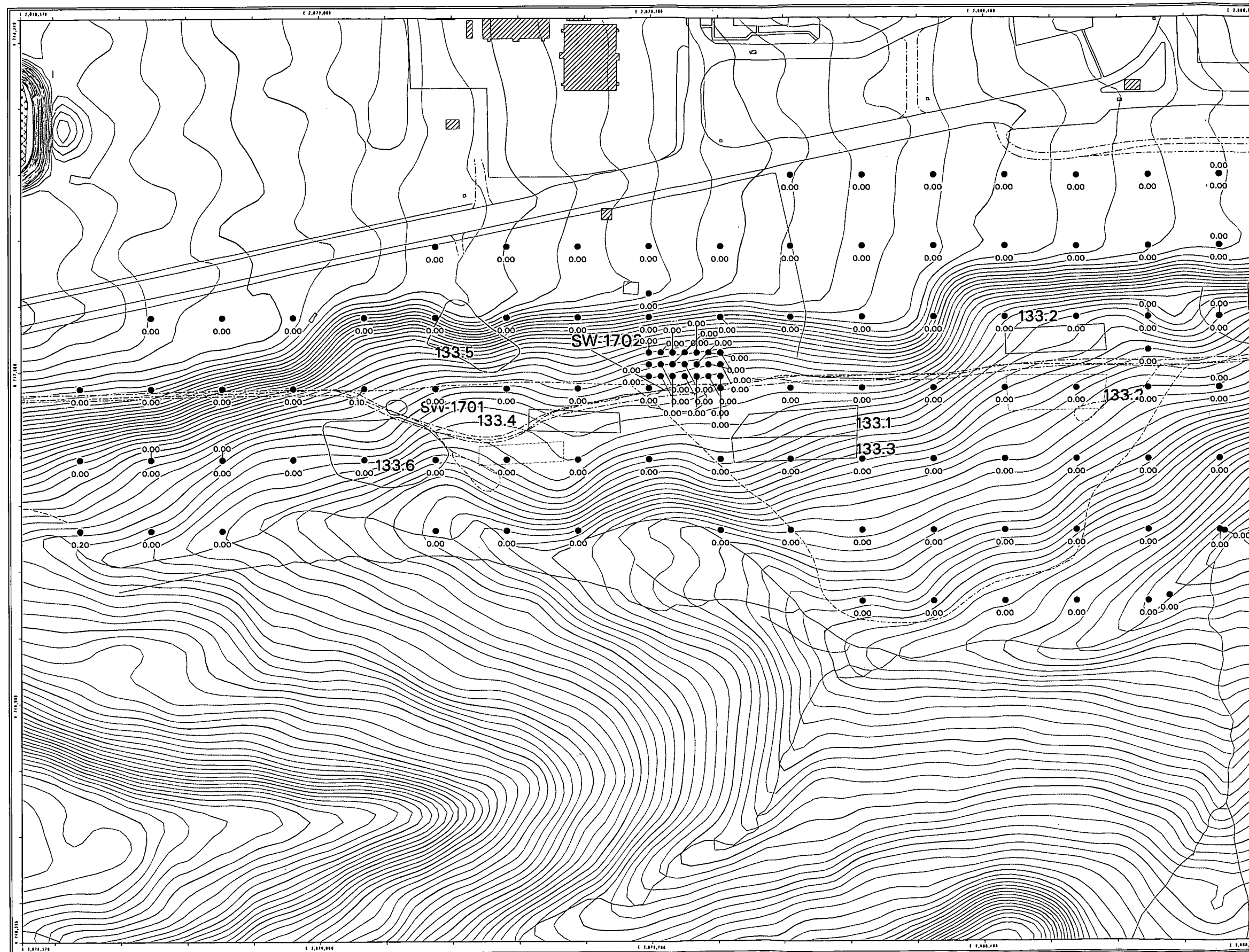


Figure 2.3
Ash Pits
HPGe Data for
Americium 241 (pCi/g)

EXPLANATION

- HPGe Location
- Ash Pit
- Ghost Ash Pit

Standard Map Features

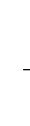
- Buildings and other structures
- ▨ Demolished buildings and Other Structures
- ▤ Lakes and ponds
- Streams, ditches, or other drainage features
- Topographic Contour (2-Foot)
- Paved roads
- Dirt roads

DATA SOURCE BASE FEATURES:

Buildings, fences, hydrography, roads and other structures from 1994 aerial fly over data captured by EOAS RSL, Las Vegas. Digitized from the orthophotographs. 1/95
 Topographic contours were derived from digital elevation model (DEM) data by Morrison Knudsen (MK) using ESRI Arc TIN and LATICE to process the DEM data to create 2-foot contours. The DEM data was captured by the Remote Sensing Lab, Las Vegas, NV, 1994 Aerial Flyover at 10 meter resolution. DEM post-processing performed by MK, Winter 1997.

NOTES:

All HPGe and PAC's boundaries are approximate. For more detail, please contact Nick Demos (X4605) for the following document:
 Historical Release Report (HRR) September 2001 Annual Update



Scale = 1 : 2520
 1 inch represents 210 feet



State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by:

GIS Dept. 303-966-7707

Prepared for:



November 09, 2005

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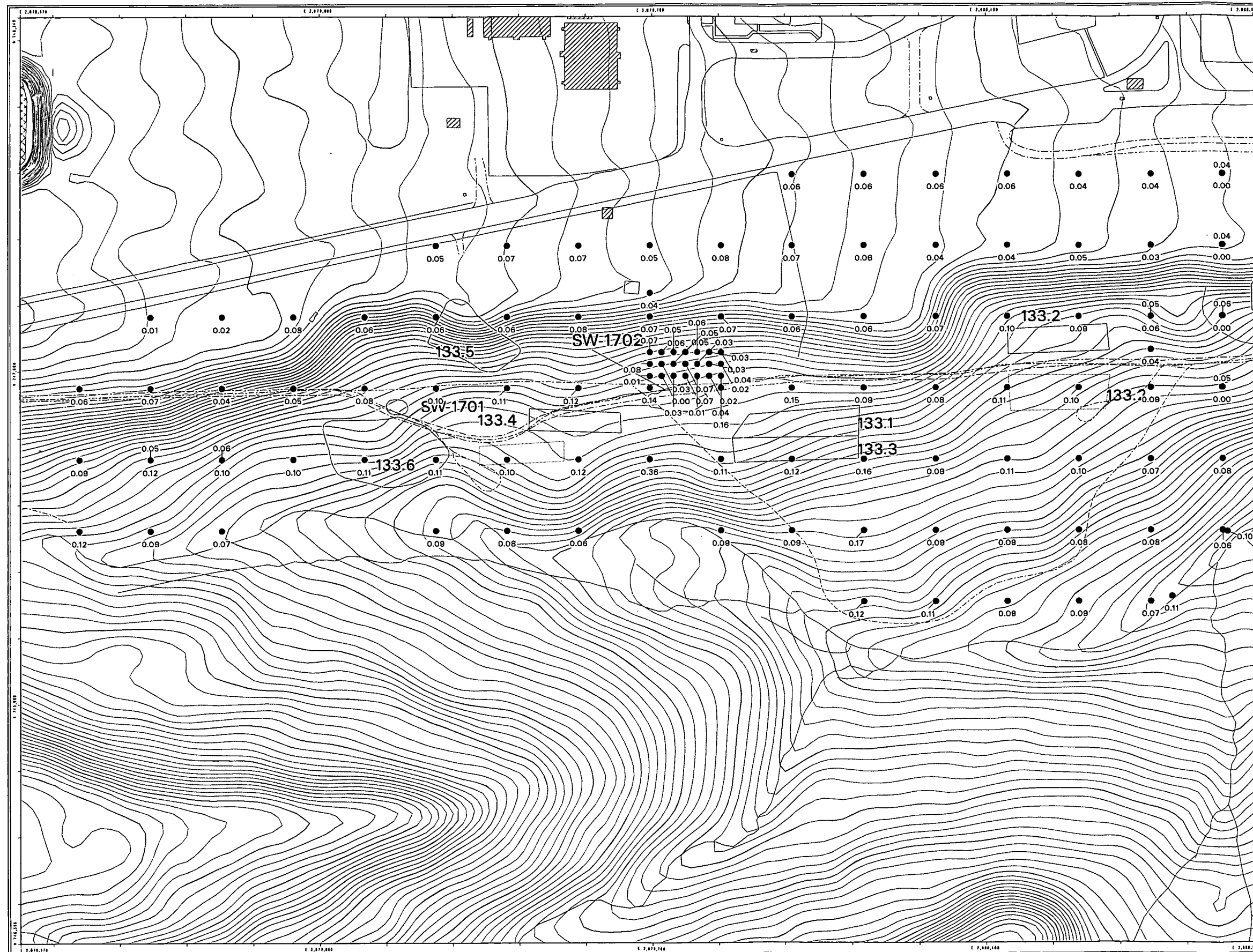


Figure 2.4
Ash Pits
HPGe Data for
Uranium 235 (pCi/g)

EXPLANATION

- HPGe Location
- Ash Pit
- Ghost Ash Pit

Standard Map Features

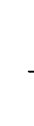
- Buildings and other structures
- ▨ Demolished buildings and other structures
- ▤ Lakes and ponds
- Streams, ditches, or other drainage features
- Topographic Contour (2-Foot)
- Paved roads
- Dirt roads

DATA SOURCE BASE FEATURES:

Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas. Digitized from the orthophotographs. 1/95
 Topographic contours were derived from digital elevation model (DEM) data by Morrison Knudsen (MK) using ESRI Arc 11N and LA/TICE to process the DEM data to create 2-foot contours. The DEM data was captured by the Remote Sensing Lab, Las Vegas, NV, 1994 Aerial Flyover at ~10 meter resolution. DEM post-processing performed by MK, Winter 1997.

NOTES:

All HPGe and PAC's boundaries are approximate. For more detail, please contact Nick Demos (X4605) for the following document: Historical Release Report (HRR) September 2001 Annual Update



Scale = 1 : 2520
 1 inch represents 210 feet



State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

GIS Dept. 303-866-7707

Prepared by:

Prepared for:



November 09, 2006

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As shown in Tables 2.5 through 2.8, SW-1702 has significantly higher concentrations of beryllium and lead than the other Ash Pits, and the average concentrations exceed the AL/PRG for burrowing animals (the PMJM-based PRG for beryllium is 8.71 mg/kg.). Although the concentrations of these COCs exceed the PRGs for protection of the PMJM, the mouse typically burrows to a depth of only 15 inches, and the buried material is 3 feet bgs at the Ash Pits per the HRR (DOE 1992). Therefore, it is unlikely that the PMJM will be exposed to the material. Furthermore, the areal extent of SW-1702 is relatively small compared to the habitat areas on Site, and, accordingly, the risk to the PMJM (and prairie dog) is also proportionately low. Lastly, SW-1702 is in a PMJM habitat, and it is uncertain that removal of the buried material and disruption of the habitat would result in a net benefit to the PMJM.

Stewardship Evaluation

Application of the Soil Risk Screen to the Ash Pits, specifically Ash Pit 1 (SW-133.1), Ash Pit 2 (SW-133.2), Ash Pit 4 (SW-133.4), and the Recently Identified Ash Pit (TDEM-2) (SW-1702), indicates NFAA is necessary for protection of public health and the environment. However, because subsurface soil at some of these PACs has contaminant concentrations that exceed soil ALs, both near-term and long-term stewardship actions have been recommended¹. They are discussed below.

Near-Term Management Recommendations

Near-term recommendations for environmental stewardship include the following:

- Continued groundwater monitoring will evaluate the potential impacts to surface water quality.
- Excavation at the area will continue to be controlled through the Site Soil Disturbance Permit process.
- Site access and security controls will remain in place pending implementation of long-term controls.

Long-Term Stewardship Recommendations

Based on remaining environmental conditions at the Ash Pits, no specific long-term stewardship activities are recommended beyond the generally applicable Site requirements that may be imposed on this area in the future, which are dependent upon the final remedy selected. Institutional controls that may be used as appropriate for this area include the following:

¹ The Ash Pits are contiguous with the Industrial Area (IA) where subsurface soil contaminant concentrations will likely exceed soil ALs at some locations. Considering the large size of the IA relative to the Ash Pits, there would be no significant reduction in the area requiring near-term and long-term stewardship actions if the contaminated subsurface soil at the Ash Pits were removed.

Responses to Operation or Occurrence

The accelerated action included removal of the Building 123 slab, footers, source pits, manholes, sumps, process waste lines, and contaminated soil, as well as site reclamation (DOE 2002). Activities were conducted between January 29 and April 18, 2002. Details are provided in the Closeout Report for IHSS Groups 100-4 and 100-5 (DOE 2003).

Additional removal actions beyond ER RSOP Notification #IA-02-01 accelerated action goals (DOE 2002) were not required at IHSS 100-4 because of the following:

- Residual radionuclide activities in subsurface soil were less than RFCA Tier II and WRW ALs and only slightly greater than background plus two standard deviations.
- Residual lead concentrations in subsurface soil were less than the Tier II and WRW ALs but were greater than the Ecological Receptor AL.
- Residual SVOC concentrations were less than Tier II and WRW ALs.
- Radionuclide activities in surface soil were less than Tier II and WRW ALs and only slightly greater than background plus two standard deviations (DOE 2003).
- A beryllium concentration in surface soil, outside of UBC 123, IHSS 148, and PAC 100-611 but within the AOC, at only one location and was 0.16 milligrams per kilogram (mg/kg) greater than the RFCA Tier II AL but less than WRW and Ecological Receptor ALs.
- Methylene chloride concentrations in subsurface soil, outside of UBC Site 123, IHSS 148, and PAC 100-611 but within the AOC were greater than the RFCA Tier II AL at six locations. Methylene chloride does not pose a significant risk at these concentrations. Additionally, methylene chloride was found in laboratory blanks associated with the data set.
- All excavated areas were backfilled and revegetated after confirmation sampling results were received and discussed with regulatory agencies through the consultative process. Excavated soil with radionuclide activities less than RFCA Tier II ALs was used as backfill in the trench from which it was removed. Additionally, 32 end-dump loads of topsoil from offsite sources were used to bring excavated areas up to grade.
- The IHSS Group 100-4 area was rough-graded before topsoil was distributed over the site. The topsoil was graded, then scarified, and a seed mix consisting of Canada bluegrass was spread over the site using broadcast seeding methods. Hydromulch was applied to conserve moisture and prevent seed erosion.

Fate of Constituents Released to Environment

Sumps and process waste lines within IHSS 100-148 were excavated and packaged for disposal. Confirmation sampling results from the soil beneath the sumps and process

Responses to Operation or Occurrence

In accordance with the IASAP (DOE 2001), the 95% upper confidence limit (UCL) of the mean of the COC across the AOC divided by the AL is used to determine if action is warranted. Using this conservative approach across the AOC increases the mean and consequently the ratio between the mean and the AL. If the resulting ratio is less than 1, action is not warranted. In the case of barium, the 95% UCL of the mean across the AOC is 2,841 mg/kg, and the AOC consists of IHSS Group 800-2 (i.e., UBC 881 and PAC 800-1205). The resulting ratio (2,841/26,400) equals 0.108, and therefore, action is not warranted. In addition, in accordance with the hot spot methodology, arsenic and barium concentrations are less than three times their ALs. The arsenic concentration is also very close to its AL and is within its background range.

Fate of Constituents Released to the Environment

Results from the accelerated action characterization, based on the Final Closeout Report for IHSS Group 800-2 (DOE 2003), indicate that soil concentrations are less than the RFCA WRW ALs, with the two exceptions noted above. Any migration of contaminants would not adversely impact surface water or groundwater quality. PAC 800-1205 is not located in an area susceptible to landslides or high erosion.

Surface water and groundwater from PAC 800-1205 flow towards the SID and Woman Creek. The distance from the PAC to the SID is more than 500 feet. If COCs (i.e., radionuclides, metals, VOCs and SVOCs at relatively low concentrations) were to migrate to these surface waters, either via erosion or groundwater transport, their concentrations at that point would be very low and probably would not cause an exceedance of water quality standards. During transport, the metals of concern would adsorb onto soil.

Action/No Further Accelerated Action Recommendation

Based on the soil characterization results and the subsurface soil risk screen evaluation, there is no significant contaminant source in the PAC, and therefore, no actual or potential risk to human health or the environment. No long-term stewardship activities are recommended for PAC 800-1205 beyond the generally applicable Site requirements that may be imposed on this area in the future. Institutional controls that will be used as appropriate for this area include prohibitions on construction of buildings in the IA, restrictions on excavation or other soil disturbance, and prohibitions on groundwater pumping in the area of PAC 800-1205. No specific engineered controls or environmental monitoring are anticipated as a result of the conditions remaining in PAC 800-1205.

DOE received concurrence of NFAA status for IHSS Group 800-2 on July 16, 2003 (S.H. Gunderson, letter, to R. DiSalvo, 2003).

PAC REFERENCE NUMBER: 900-1310

IHSS Number: NA
Operable Unit: Industrial Area
IHSS Group: 000-1
Unit Name: Interceptor Trench system (ITS) Water Spill
Approximate Location: N751,000; E2,085,000

Date(s) of Operation or Occurrence

November 30, 1992

Description of Operation or Occurrence

A release of approximately 490 gallons of interceptor trench water was reported at 1:45 AM on November 30, 1992. Surface water runoff and potentially contaminated groundwater are collected in the ITPH system prior to being pumped from a centralized sump into the 207B North Solar Evaporation Pond. The release originated from a separation of a pipe coupling in the 3-inch transfer line on the east slope of the 207B North solar Evaporation Pond berm and flowed onto the surrounding soil.

The 3-foot section of drain hose that was connected to the end of the inlet pipe to the 207B North Pond had frozen during several days of sub-zero weather and caused a back pressure in the pipe when the interceptor central sump began to pump water into the pond.

Description of Operation or Occurrence

(See HRR Quarterly Update No. 2 [DOE 1993] for complete write-up)

The interceptor trench water is managed as RCRA-regulated hazardous waste because the groundwater may have contained RCRA-regulated hazardous constituents due to the possibility of releases from the SEP. Previous analytical testing indicated that the listed hazardous waste constituents have been detected in the interceptor trench water. The material in the SEP was characterized as RCRA-regulated waste with the following EPA waste codes: D006, F001, F002, F003, F005, F006, F007, and F009. A sample of the water was taken on November 30, 1992 and preliminary results indicated that CLP volatiles were comparable to analytical results taken previously for this waste stream. Upon validation of analytical results, all data was forwarded to the CDPHE.

Responses to Operation or Occurrence

CDH was notified on November 30, 1992 that the RCRA Contingency Plan had been implemented. The EPA, Region 8 was notified by facsimile on December 1, 1992.

The pipe connection was repaired and the system was placed back into service. The released material was not directly recoverable because it soaked into the soil. Because of the location of the release (upgradient of the ITPH system in an area previously identified to be possibly contaminated by past releases from the proximal SEP), no action was taken to immediately recover the material.

PAC 900-1310 was included in the SEP AOC (DOE 2003a). Five soil samples were collected from PAC 900-1310 in accordance with IASAP Addendum #IA-02-07 (DOE 2002).

Fate of Constituents Released to Environment

The area impacted by this release was submitted in accordance with the IAG, Sections I.B.3 Notification, and I.B.5 Historical Release Report for final disposition.

Characterization results, described in the Closeout Report for IHSS Group 000-1 Solar Evaporation Ponds Area of Concern (DOE 2003b), indicated that all PCOC concentrations were less than WRW and ecological receptor ALs.

Action/No Further Accelerated Action Recommendation

Based on the results of the soil samples collected, no current or potential contaminant source was identified. PCOCs for PAC 900-1310 were not detected at concentrations greater than RFCA WRW and ecological receptor ALs (DOE 2003b).

No long-term stewardship activities are recommended for IHSS Group 000-1 AOC beyond the generally applicable Site requirements that may be imposed on this area in the future. Institutional controls that will be used as appropriate for this area include prohibitions on construction of buildings in the IA, restrictions on excavation or other soil disturbance, and prohibitions on groundwater pumping in the area of IHSS 000-1 AOC.

No specific engineered controls are anticipated as a result of the conditions remaining in IHSS Group 000-1. Current groundwater monitoring will continue.

DOE received concurrence of NFAA status for Group 000-1 AOC on July 25, 2003 (S.H. Gunderson letter to J. Legare, 2003a) and approval of the PAM in May, 2003 (S.H. Gunderson letter to J. Legare, 2003b)

Comments

Map generation of spill area and survey coordinates are in progress. Addition of current validated analytical results will be transmitted to the EPA and CDH upon receipt to accompany this update.

Responses to Operation or Occurrence

The accelerated action included removal of the Building 123 slab, footers, source pits, manholes, sumps, process waste lines, and contaminated soil, as well as site reclamation. Activities were conducted between January 29 and April 18, 2002. Details are provided in the Closeout Report for IHSS Groups 100-4 and 100-5 (DOE 2003).

Confirmation sampling and analysis were conducted, after excavation and before backfilling, to verify accelerated action goals. Confirmation sampling results indicate that all contaminant concentrations are less than RFCA Tier II and WRW ALs (DOE 2003).

RCRA Unit Closure

The pipe chases and sumps in Rooms 156, 157, and 158 were clean closed in accordance with the Closure Plan for Building 123 Components of RCRA Unit 40 (DOE 1997) but were not removed. Closure of the sump in Room 125 and the underground pipe from Room 158 did not meet the closure performance standards (RMRS 1998b) and were deferred to ER remediation. RCRA COCs at this location were metals and radionuclides.

RCRA closure accelerated action objectives were to remove all sumps and process waste lines associated with RCRA Unit 40 within the IHSS Group 100-4 AOC. Sumps located in former Rooms 156, 157, and 158 were removed; along with more than 1 foot of soil around and beneath the sumps. Pipelines between former Rooms 156 and 157 sump locations and more than 1 foot of soil around and beneath the pipelines was excavated. Additionally, approximately 40 feet of associated 4-inch-diameter stainless steel pipeline was excavated. Contamination was not detected on sumps or associated pipeline.

Confirmation samples were collected from the soil beneath each sump location, and one was collected in the pipeline trench between the Room 156 and 157 sump locations. Results indicated that americium-241 was slightly greater than background plus two standard deviations at one location, uranium-235 was slightly greater than background plus two standard deviations at one location, and uranium-238 was slightly greater than background plus two standard deviations at two locations. These data indicate that the sumps and pipelines had not leaked.

RCRA Unit 40 process waste lines were excavated and removed from the sumps to Manhole (MH)-2. The remaining pipeline south of MH-2 to Valve Vault 18 could not be removed because of infrastructure constraints. The sump (waste pumping station) in Room 125 was removed during decontamination and decommissioning (D&D) of the building. The following portions of RCRA Unit 40 were removed:

- Sumps in former Rooms 156, 157, and 158 and associated pipelines; and
- Process waste line from the sumps to MH-2.

PAC REFERENCE NUMBER: UBC 776 AND UBC 777

IHSS Number: Not applicable

Operable Unit: Industrial Area

IHSS Group 700-7

Unit Name: Building 776 Under Building Contamination and Building
777 Under Building Contamination

Approximate Location: N750,600; E2,083,800

Date(s) of Operation or Occurrence

1957 - 2002

Description of Operation or Occurrence

Information on Building 776/777 is from the HAER (DOE 1998). Building 776/777, which went into service in 1958, was the main manufacturing facility for plutonium weapons components and housed plutonium foundry and fabrication operations. Following a major fire in Building 776/777 in 1969, the majority of the foundry and fabrication operations were transferred to Building 707. After the fire, the main focus of building operations was shifted to waste and residue handling, disassembly of retired weapons components, and special projects. Processes conducted in Building 776 included size reduction, advanced size reduction, pyrochemistry, coatings operations, and test runs of organic waste and combustibles in a fluidized bed incinerator.

Beginning in 1958 and continuing through 1969, Building 776/777 was the main manufacturing facility for Plutonium weapons components and housed foundry and fabrication operations. Building 776/777 reflected the latest design criteria and engineering technology available when it was constructed. Since the facility was first occupied in 1957, 10 major modification additions were made to update the building and/or provide increased safety.

On May 11, 1969, at 2:27 p.m., a fire was detected in Building 776/777 when an alarm in the north plutonium foundry glovebox line was triggered. Spontaneous ignition of a briquette of scrap plutonium alloy metal contained in a small metal can caused the fire. The fire spread through combustible materials in up to 150 connecting gloveboxes in Building 776 and the assembly line in Building 777. The fire was brought under control by 6:30 p.m. Fearing a breach in the building's outer walls, firefighters used water to control the blaze. This was the first time water was used directly on burning plutonium and it did not create a nuclear criticality.

3.2 Identification of Historical Release Sites

The following discussion of the programs dedicated to identifying potential historical release sites at Rocky Flats is presented to summarize the comprehensive and in-depth effort that has gone into identifying potential releases at RFETS over the last 15 to 30 years.

In responses to several of the findings, the CEARP is referenced. The CEARP was the precursor to the Environmental Restoration Program within DOE, and was based on CERCLA process. The CEARP comprehensively identified and evaluated actual and potential waste sites and contamination incidents including leaks and spills. The CEARP Phase I: Installation Assessment Report was released in April 1986. The Phase I Report focused on whether waste disposal practices or other operations resulted in environmental problems that require remedial action. The CEARP Phase I Report was based on a records search, open literature survey, employee interviews, preliminary assessments, and site inspections. The Phase I Report provided documentation for CERCLA pre-remedial activities including Federal Facility Site Discovery and Identification Findings, Preliminary Assessments, Site Inspections, and Hazard Ranking System evaluation. The Phase I investigations were performed by personnel of the Los Alamos National Laboratory (LANL) for DOE Albuquerque Operations. At the time, DOE-Headquarters (HQ) and Albuquerque Operations were conducting environmental contamination assessments for all the weapons sites under their jurisdiction, which included Rocky Flats. DOE and Contractor personnel at Rocky Flats provided assistance, but not direction, to the LANL investigation.

As part of the records search, documents were reviewed and evaluated in the categories of environmental reports, management plans, monitoring reports, permits, operational records, standard operating procedures, appraisals, audits, inspections, special reports, historical documents, accident/incident investigation reports, and internal files. Key historical documents that were reviewed included "A Summary of Onsite Radioactive Waste Disposal" (Putzier 1970) and "Environmental Inventory: A Historical Summation of Environmental Incidents Affecting Soils at or Near the USAEC Rocky Flats Plant" (Owen and Steward 1973).

Former and current Site employees with knowledge of Site operations were identified and screened to determine who should be interviewed. Eighty-four employees familiar with production, facilities, site services, research, waste management, and environmental operations were interviewed. These individuals were interviewed to identify waste disposal operations, past leaks or spills, and undocumented incidents or practices that could have resulted in environmental concerns. Information from the interviews covers the complete history of operations at the Site from 1951 through 1984 and is included in the CEARP Phase I Report.

In addition to the CEARP Installation Assessment Report, a HRR was prepared in June 1992. The HRR was updated quarterly under the IAG until 1996. Since then, the HRR has been updated annually under the RFCA. The purpose of the HRR is to report, summarize, and update existing and/or new information on incidents involving hazardous substances at Rocky Flats. The information in the HRR is used by EPA and CDPHE to determine whether sites potentially affected by incidents, known as PACs, IHSSs, and UBC Sites require or warrant further

investigation and/or remediation. IHSSs are defined as individual locations where hazardous substances have come to be located at a discrete area within the Site.

Identification and characterization of hazardous material releases are determined by background research, comprehensive review of DOE and contractor files, interviews with current and former Site employees, review of photographs, and site inspections. Thousands of documents have been reviewed and several hundred employees have been interviewed as part of the HRR process. The HRR process has verified and augmented previous IHSS documentation, and identified potential new sites that may present an impact to human health and the environment.

The photographs and preliminary photographic interpretations of disturbed areas at Rocky Flats contained in the EPA Photo Report of 1988 were reviewed during the initial HRR investigations. The EPA Photo Report is cited extensively in, and is the basis of, the CDPHE BZ Report.

3.3 Resolution of Concerns

In the following sections, CDPHE concerns and responses to those concerns have been summarized to facilitate final resolution of the concerns raised in the BZ Report.

Concerns for many of the sites were resolved at the January 10, 2001 meeting, and agreements were reached to resolve concerns for all of the areas identified by CDPHE. This document has been revised to resolve concerns for all of the sites as agreed at the January 10, 2001 meeting. Refer to the meeting minutes for the resolution of concerns and agreements for each site.

SITE #1 - Disturbed ground immediately southeast of the 1A identified as the former small arms range (see CDPHE Buffer Zone Report, Appendix 2, #1 and 64)

Resolution: This site is the Old Firing Range. It has been designated as a new PAC, number SE-1602. It is addressed in the 1999 Annual Update to the HRR. DOE will prepare an ER RSOP Notification for the removal of bullets and associated debris at SE-1602 in FY04.

3.4 Specific Events and Occurrences

This section describes specific events, occurrences and projects that have taken place during the reporting period for this annual update. The event descriptions are brief summaries and may be useful for future projects and in support of the Sites closure.

3.4.1 RFCA Attachment 5 Modification

EPA, CDPHE, and DOE approved modifications to RFCA Attachment 5 on June 5, 2003. The modifications impacted soil action levels, added a subsurface soil screen, and action/no further accelerated action determinations. Refer to RFCA Attachment 5, dated May 28, 2003 for details. Attachment 14, which covers OPWL characterization and remediation, was also added.

3.4.2 Closure of the SEP (IHSS 000-101)

Closure of the SEP at RFETS, was proposed under alternative RCRA Interim Status closure requirements found in 6 Colorado Code of Regulations (CCR) 1007-3, 265.110(d), because a release from the SEP has occurred and releases from other units in the area of the SEP have also